Appendix A - Presidential Proclamation

June 9, 2000

ESTABLISHMENT OF THE CASCADE-SISKIYOU NATIONAL MONUMENT
BY THE PRESIDENT OF THE UNITED STATES OF AMERICA
A PROCLAMATION

With towering fir forests, sunlit oak groves, wildflower-strewn meadows, and steep canyons, the Cascade-Siskiyou National Monument is an ecological wonder, with biological diversity unmatched in the Cascade Range. This rich enclave of natural resources is a biological crossroads -- the interface of the Cascade, Klamath, and Siskiyou ecoregions, in an area of unique geology, biology, climate, and topography.

The monument is home to a spectacular variety of rare and beautiful species of plants and animals, whose survival in this region depends upon its continued ecological integrity. Plant communities present a rich mosaic of grass and shrublands, Garry and California black oak woodlands, juniper scablands, mixed conifer and white fir forests, and wet meadows. Stream bottoms support broad-leaf deciduous riparian trees and shrubs. Special plant communities include rosaceous chaparral and oak-juniper woodlands. The monument also contains many rare and endemic plants, such as Greene's Mariposa lily, Gentner's fritillary, and Bellinger's meadowfoam.

The monument supports an exceptional range of fauna, including one of the highest diversities of butterfly species in the United States. The Jenny Creek portion of the monument is a significant center of fresh water snail diversity, and is home to three endemic fish species, including a long-isolated stock of redband trout. The monument contains important populations of small mammals, reptile and amphibian species, and ungulates, including important winter habitat for deer. It also contains old growth habitat crucial to the threatened Northern spotted owl and numerous other bird species such as the western bluebird, the western meadowlark, the pileated woodpecker, the flammulated owl, and the pygmy nuthatch.

The monument's geology contributes substantially to its spectacular biological diversity. The majority of the monument is within the Cascade Mountain Range. The western edge of the monument lies within the older Klamath Mountain geologic province. The dynamic plate tectonics of the area, and the mixing of igneous, metamorphic, and sedimentary geological formations, have resulted in diverse lithologies and soils. Along with periods of geological isolation and a range of environmental conditions, the complex geologic history of the area has been instrumental in producing the diverse vegetative and biological richness seen today.

One of the most striking features of the Western Cascades in this area is Pilot Rock, located near the southern boundary of the monument. The rock is a volcanic plug, a remnant of a feeder vent left after a volcano eroded away, leaving an outstanding example of the inside of a volcano. Pilot Rock has sheer, vertical basalt faces up to 400 feet above the talus slope at its base, with classic columnar jointing created by the cooling of its andesite composition.

The Siskiyou Pass in the southwest comer of the monument contains portions of the Oregon/California Trail, the region's main north/south travel route first established by Native Americans in prehistoric times, and used by Peter Skene Ogden in his 1827 exploration for the Hudson's Bay Company.

Section 2 of the Act of June 8, 1906 (34 Stat. 225, 16 U.S.C. 43 1), authorizes the President, in his discretion, to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States to be national monuments, and to reserve as a part thereof parcels of land, the limits of which in all cases shall be confined to the smallest area compatible with the proper care and management of the objects to be protected.

WHEREAS it appears that it would be in the public interest to reserve such lands as a national monument to be known as the Cascade-Siskiyou National Monument:

NOW, THEREFORE, I, WILLIAM J. CLINTON, President of the United States of America, by the authority vested in me by section 2 of the Act of June 8, 1906 (34 Stat. 225, 16 U.S.C. 43 1), do proclaim that there are hereby set apart and reserved as the Cascade-Siskiyou National Monument, for the purpose of protecting the objects identified above, all lands and interests in lands owned or controlled by the United States within the boundaries of the area described on the map entitled "Cascade-Siskiyou National Monument" attached to and forming a part of this proclamation. The Federal land and interests in land reserved consist of approximately 52,000 acres, which is the smallest area compatible with the proper care and management of the objects to be protected.

All Federal lands and interests in lands within the boundaries of this monument are hereby appropriated and withdrawn from all forms of entry, location, selection, sale, or leasing or other disposition under the public land laws, including but not limited to withdrawal from location, entry, and patent under the mining laws, and from disposition under all laws relating to mineral and geothermal leasing, other than by exchange that furthers the protective purposes of the monument.

There is hereby reserved, as of the date of this proclamation and subject to valid existing rights, a quantity of water sufficient to fulfill the purposes for which this monument is established. Nothing in this reservation shall be construed as a relinquishment or reduction of any water use or rights reserved or appropriated by the United States on or before the date of this proclamation.

The commercial harvest of timber or other vegetative material is prohibited, except when part of an authorized science-based ecological restoration project aimed at meeting protection and old growth enhancement objectives. Any such project must be consistent with the purposes of this proclamation. No portion of the monument shall be considered to be suited for timber production, and no part of the monument shall be used in a calculation or provision of a sustained yield of timber. Removal of trees from within the monument area may take place only if clearly needed for ecological restoration and maintenance or public safety.

For the purpose of protecting the objects identified above, the Secretary of the Interior shall prohibit all motorized and mechanized vehicle use off road and shall close the Schoheim Road, except for emergency or authorized administrative purposes. Lands and interests in lands within the monument not owned by the United States shall be reserved as a part of the monument upon acquisition of title thereto by the United States.

The Secretary of the Interior shall manage the monument through the Bureau of Land Management, pursuant to applicable legal authorities (including, where applicable, the Act of August 28, 1937, as amended (43 U.S.C. 11 8 la-I 18 lj)), to implement the purposes of this proclamation.

The Secretary of the Interior shall prepare, within 3 years of this date, a management plan for this monument, and shall promulgate such regulations for its management as he deems appropriate. The management plan shall include appropriate transportation planning that addresses the actions, including road closures or travel restrictions, necessary to protect the objects identified in this proclamation.

The Secretary of the Interior shall study the impacts of livestock grazing on the objects of biological interest in the monument with specific attention to sustaining the natural ecosystem dynamics. Existing authorized permits or leases may continue with appropriate terms and conditions under existing laws and regulations. Should grazing be found incompatible with protecting the objects of biological interest, the Secretary shall retire the grazing allotments pursuant to the processes of applicable law. Should grazing permits or leases be relinquished by existing holders, the Secretary shall not reallocate the forage available under such permits or for livestock grazing purposes unless the Secretary specifically finds, pending the outcome of the study, that such reallocation will advance the purposes of the proclamation.

The establishment of this monument is subject to valid existing rights.

Nothing in this proclamation shall be deemed to enlarge or diminish the jurisdiction of the State of Oregon with respect to fish and wildlife management.

Nothing in this proclamation shall be deemed to revoke any existing withdrawal, reservation, or appropriation; however, the national monument shall be the dominant reservation.

Warning is hereby given to all unauthorized persons not to appropriate, injure, destroy, or remove any feature of this monument and not to locate or settle upon any of the lands thereof.

IN WITNESS WHEREOF, I have hereunto set my hand this ninth day of June, in the year of our Lord two thousand, and of the Independence of the United States of America the two hundred and twenty-fourth.

WILLIAM J. CLINTON

Appendix B - Antiquities Act of 1906

Act of June 18, 1906, 16 U.S.C. 431-433 (Popularly known as the AntiquitiesAct of 1906)

The following is the text of the Antiquities Act of 1906, under the authority of which President Clinton established Cascade-Siskiyou National Monument.

16 U.S.C. § 431 National monuments; reservation of lands; relinquishment of private claims:

The President of the United States is authorized, in his discretion, to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States to be national monuments, and may reserve as a part thereof parcels of land, the limits of which in all cases shall be confined to the smallest area compatible with the proper care and management of the objects to be protected. When such objects are situated upon a tract covered by a bona fide unperfected claim or held in private ownership, the tract, or so much thereof as may be necessary for the proper care and management of the object, may be relinquished to the Government, and the Secretary of the Interior is authorized to accept the relinquishment of such tracts in behalf of the Government of the United States.

16 U.S.C § 431a Limitation on further extension or establishment of national monuments in Wyoming:

No further extension or establishment of national monuments in Wyoming may be undertaken except by express authorization of Congress.

Appendix C - Memoirs of George Wright

Plant Community History

The non-conifer plant communities, (i.e. grasslands, shrublands, and woodlands) share several disruptive forces. These include historical livestock use over the past 100 years, fire suppression, road building, and consequent weed encroachment. The memoirs of George Wright provide a fascinating insight to past livestock management and plant community changes within the CSNM.

"During the spring of 1889 and 1890 ... hundreds of cattle had just been loosed on the rangeland to graze the southward slopes of hillsides between Hornbrook and the Pilot Rock area ..." (p.4 of "The truth about Reelfoot" George F. Wright).

Prior to Purl Bean purchasing the Horseshoe Ranch in about 1890, this area in Scotch Creek had been used as a summer camp to oversee the cattle grazing on the surrounding hillsides. The ranches appeared to change hands frequently, thus Purl Bean sold the horseshoe ranch to A.B.Smith in 1900, who sold it to Everett Elmore in 1912, who in turn sold it to the Hayes brothers in 1915. The ranch changed hands several more times before George Wright recorded his musings about the area (Horseshoe Ranch January 18th 1954, #582).

Another Ranch initially homesteaded in Camp creek in the year 1865 was home to 300 cattle when sold in 1932 by the De Soza family (The De Soza Ranch, January 22, 1954 #591).

The Madero ranch, located where Pine Creek joins Camp Creek, had 100 cattle with saddle and draft horses (The Madero Ranch, January 23, 1954 #592).

William A. Wright established his ranch where Salt Creek empties into Camp Creek in 1879. He was an active fellow, fenced off his 160 acre homestead, leased and fenced an adjoining section of land. He married in 1885, and had 6 children. He raised alfalfa hay and kept 300 cattle. (The McNew ranch, January 25, 1954 #594).

The left fork of Camp Creek is to the west of Bald Mountain. "Years ago, the area produced lots of grass which made it good range for cattle but it is not nearly as good now as it used to be ... now the grass is about gone and is becoming, like many other things, just a memory" (The left fork of Camp Creek, January 29, 1954 #600).

The area [Lone Pine Ridge] in the early days was a fine winter and spring range for cattle and horses because there was always a good supply of bunchgrass growing on the hillsides. Roaming bands of horses depleted the bunchgrasses but most of them have been rounded up so maybe the good old bunchgrass will get a second chance" (Lone Pine Ridge, January 29 1954 #601).

Referring to a cold spring on the southeast foot of Timber Mountain, George Wright mentions that "sheep men with their herd of sheep camped there thirty or forty years ago. The sheep killed about all the good grass ... (Timber Mountain, February 3 1954 #610)."

Years ago there was a sheep camp during the summer months on the west side of Bald [Soda] Mountain ... The Bald Mountain area was a wonderful place for grass but the sheep men would herd their sheep there year after year until the grass was killed out. Weeds of different kinds have taken the place of the grass. About 1923 after the sheep had ruined the range, the cattlemen banded together and bought the sheep camp and the land, probably 160 acres. They also leased more land around there in order to keep the sheep men away. (Bald Mountain, February 6, 1954 #614).

The name Salt Creek was derived from the fact that Charles M. Marsue provided a salt lick for his cattle. A corral was built to enclose cattle that had gone wild in that area prior to 1875 (Salt Creek, February 6 1954 #617).

The ridge between Camp Creek and Salt Creek became known as the Salt Creek ridge by the mid 1940's. George Wright reports that "It used to be a good place for deer and many big bucks have been taken there in past years. The upper part of the ridge was a good horse range but since the fine bunch grass has been killed out on the knolls and ridges the range horses are about a thing of the past" (Salt Creek Ridge February 6, 1954 #618).

George Wright reports that the plow land on Cold Spring Flat (Agate Flats) was sown with rye in the late 1880's (Cold Spring Flat, February 19 1954 #634). The Cold Spring was also a "watering place for cattle and horses. They came there by the hundreds." (Cold Spring February 20, 1954 #639).

George Wright refers to a livestock Ranch up Skookum Creek dating back to the 1900s (Whites Pasture, February 21, 1954 #641). Also reports a corral along the upper part of Skookum Creek for the purpose of corralling wild cattle (John's Camp February 22 1954 #645).

"Skookum ridge was a good cattle range but due to overgrazing is not near as good now" (Skookum Ridge, February 26, 1954 #651).

George Wright refers to a goat camp on the north side of Skookum ridge ... "too many goats and cattle killed out most of the grass" (The Goat Camp March 18, 1954 #680).

Kein Creek ... "around forty or more years ago that was a fine cattle range, but is not near so good now" (May 1929, 1954 Kein Creek # 688).

Appendix D - Soil Characteristics Table

Table AD -1. Soil Characteristics of the CSNM

Map Unit #	Soil Series Name	Soil Depth	Surface Texture	Subsoil Texture(s)
14	Bogus	60+”	v. gravelly loam	clay loam
18	Bybee	60+”	loam	clay
19/20/ 190/191	Tatouche	60+”	gravelly loam	clay
24	Campfour	60+”	loam	clay loam
24	Paragon	20-40"	cobbly loam	gravelly clay loam
27	Carney	20-40"	clay	clay w/water table
28	Carney	20-40"	cobbly clay	clay w/water table
57/58/60	Farva	20-40"	very cobbly loam	cobbly loam
78	Greystoke	40-60"	stoney loam	ex.gr.clay loam
81	Heppsie	20-40"	clay	clay, stoney clay
82/113/ 116/125	McMullin	<20"	gravelly loam	gr.clay loam
84	Hobit	20-40"	loam	gr.clay loam
96	Kanutchan	40-60"	clay	clay
114/116/119	McNull	40-60"	clay loam	cobbly clay
119	Medco	20-40"	cobbly clay loam	clay
128	Medford	60+”	clay loam	clay
143	Pinehurst	60+”	loam	clay loam
145	Greystoke	40-60"	stoney loam	ex.gr.clay loam
152	Randcore	<12"	ex.stoney loam	loam
152	Shoat	20-40"	loam	loam
160	Rustlerpeak	20-40"	gravelly loam	cobbly clay loam
167	Sibannac	60+”	silt loam	clay loam
170/173	Skookum	20-40"	very cobbly loam	very cobbly clay loam
180	Steinmetz	60+”	sandy loam	sandy loam
207	Woodseye	<20"	very stoney loam	very cobbly loam

Appendix E - Plant Species in CSNM

This undocumented list was compiled by Frank Lang from a number of sources: Benoche (1999), Brock and Callagan (1999), Bradney (1999), Lang and others (1999a, 1999b), Lytjen and Otting (1999), Miller (1999), Wilson and others (1999), USDI-BLM (1999), USDI-BLM (1995) and personal observations (Lang). Nomenclature mostly follows Hickman (1993) and the NRCS Plant List for Oregon (NRCS 1999). The NRCS Plant List and some Sawyer and Keeler-Wolf (1995) recommendations are used for common names. To simplify and shorten common names the following conventions were adopted. Rather than -leaved and -flowered, -leaf and -flower are used. The possessive form ('s) for honorific names is not used, unless confusion would follow when spoken (Greene's mariposa lily rather than Greene mariposa Lily; is the lily green or Greene). We do not use the possessive for trees (Jeffrey pine) or for other plants (Howell false caraway). Hyphens are generally ignored.

Plants listed below may be widely distributed throughout the CSNM planing area or maybe very local. The following symbols are used to indicate geographical areas in the CSNM: cc = Cathedral Cliffs (Lower Camp Creek); cm = Chinkapin Mountain; hb = Hobart Bluff; jc = Jenny Creek; kc = Keene Creek area; lp = Lone Pine Ridge; lsr = former Jenny Creek Late Successional Reserve; mu = Mariposa Unit, Pilot Rock area; og = Oregon Gulch RNA; pbp = Parsnip Beaver Ponds; pdo = Porcupine / Dutch Oven Creek Ridge; plk = Parsnip Lakes; pr = Pilot Rock area; pru = Pilot Rock Unit, Pilot Rock; sc = Scotch Creek RNA; wsa = Soda Mountain Wilderness Study Area.

Native plants are indicated by italicized *New Times Roman*, alien plants by italicized *Arial*; noxious weeds by *italicized* and bold ***Arial*** scientific names.

Table AE -1. Plant Species in the CSNM

Scientific Name	Common Name	Place
Aceraceae		
Acer circinatum	vine maple	kc
Acer glabrum	Rocky Mountain maple	kc, pr
Acer macrophyllum	bigleaf maple	sc, kc
Alismataceae		
Alisma gramineum [*lanceolatum*]	narrowleaf water plantain	plk
Anacardiaceae		
Rhus trilobata	skunkbush sumac	sc
Toxicodendron diversilobum	Pacific poison oak	sc
Apiaceae		
Angelica sp.		pbp
Anthriscus caucalis	burr chervil	sc
Cicuta douglasii	western water hemlock	plk
Daucus pusillus	American wild carrot	sc
Eryngium alismifolium	Modoc eryngo	kc
Heracleum maximum [*lanatum*]	common cow-parsnip	pbp, kc
Ligusticum apiifolium	celeryleaf licorice-root	sc
Lomatium californicum	California lomatium, Iknish	sc, kc

Table AE -1. Plant Species in the CSNM		
Scientific Name	**Common Name**	**Place**
Lomatium dissectum	fernleaf biscuitroot	sc, og, kc
Lomatium macrocarpum	giantseed biscuitroot	sc, kc, pr, og
Lomatium nudicaule	barestem lomatium	sc, kc, og
Lomatium triternatum	nineleaf biscuitroot	og, kc
Lomatium utriculatum	common lomatium	sc, og, kc
Osmorhiza berteroi [*chilensis*]	sweetcicely	sc, kc
Osmorhiza occidentalis	western sweetroot	sc, kc
Perideridia gairdneri	Gairdner yampah	kc
Perideridia howellii	Howell false caraway, yampah	sc, og, kc
Perideridia oregana	squaw potato, Oregon yampah	sc, kc
Sanicula crassicaulus	Pacific blacksnakeroot	sc, kc
Sa nicula graveolens	northern sanicle	sc, kc
Torilis arvensis	spreading hedgeparsley	sc, kc
Yabea microcarpa	false carrot	sc, kc
Apocynaceae		
Apocynum androsaemifolium	spreading dogbane	sc, plk, kc, og
Aristolochiaceae		
Asarum hartwegii	Hartweg wildginger	kc
Asarum caudatum var viridiflorum [*A.wagneri*]	longtail wildginger	cm
Asclepiadaceae		
Asclepias speciosa	showy milkweed	kc, og
Asteraceae		
Achillea millefolium	common yarrow	sc, plk, og, kc
Adenocaulon bicolor	American trail plant	sc, kc, pr
Agoseris aurantiaca	orange agoseris	kc
Agoseris grandiflora	bigflower agoseris	sc, plk, kc
Agoseris heterophylla	annual agoseris	sc, og, kc
Agoseris retorsa	spearleaf agoseris	kc
Anaphalis margaritacea	western pearly everlasting	kc
Antennaria argentea	silver pussytoes	sc, kc
Arnica cordifolia	heartleaf arnica	og, kc
Arnica discoidea	rayless arnica	kc
Arnica latifolia	broadleaf arnica	sc
Artemisia douglasiana	Douglas sagewort	sc, kc
Artemisia ludoviciana	white sagebrush	kc
Artemisia tridentata	big sagebrush	kc
Aster [*Symphyotrichum*] *foliaceus*	alpine leafybract aster	kc
Aster [*Eurybia*] *radulinus*	roughleaf aster	sc
Balsamorhiza deltoidea	deltoid balsamroot	sc, kc, og
Blepharipappus scaber	blepharipappus	sc, og, kc
Cacaliopsis nardosmia	silvercrown	sc
Centaurea solstitialis	yellow star-thistle	sc, kc, og
Chrysothamnus [*Ericameria*] *nauseosus*	rubber rabbitbrush	sc, og, kc, pr
Cichorium intybus	chicory	og
Cirsium arvense	Canada thistle	kc, og
Cirsium cymosum	peregrine thistle	sc, kc
Cirsium occidentale	cobwebby, snowy thistle	sc
Cirsium vulgare	bull thistle	sc, plk, pbp, kc
Conyza canadensis	Canadian horseweed	kc
Crepis bakeri	Baker hawksbeard	kc
Crepis capillaris	smooth hawksbeard	sc

Table AE -1. Plant Species in the CSNM		
Scientific Name	**Common Name**	**Place**
Crepis monticola	mountain hawkweed	sc
Crepis occidentalis	largeflower hawksbeard	sc
Crocidium multicaule	common spring-gold	kc
Ericameria bloomeri	rabbitbrush goldenweed	kc
Erigeron compositus	cutleaf dasiy	sc
Erigeron eatonii	Eaton fleabane	kc
Erigeron foliosus	leafy daisy	sc
Erigeron inornatus	unadorned fleabane	sc
Erigeron philadelphicus	Philadelphia fleabane	sc
Eriophyllum lanatum	wooly sunflower	sc, plk, og, kc, pr
Gnaphalium palustre	western marsh cudweed	kc
Hieracium albiflorum	white hawkweed	sc, plk, kc
Hieracium cyanglossoides	houndstounge hawkweed	kc
Hieracium scouleri	Scouler's woolyweed	sc
Hypochaeris radicata	hairy catsear	kc
Lactuca serriola	prickly lettuce	sc, kc
Leucanthemum vulgare	oxeye daisy	kc
Madia citriodora	lemonscented madia	sc
Madia elegans	common madia	kc, og
Madia exigua	small tarweed	sc, kc
Madia glomerata	mountain tarweed	sc
Madia gracilis	grassy tarweed	sc, plk, kc
Micropus californicus	q tips, slender cottnweed	sc, kc
Microseris laciniata ssp. detlingii	Detling microseris	sc
Microseris nutans	nodding microseris	sc
Petasites frigidus	arctic sweet coltsfoot	kc
Rafinesquia californica	California plumbseed	sc
Rigiopappus leptocladus	wireweed, bristlehead	sc
Senecio integerrimus	lambstongue ragwort	sc, og, kc
Sonchus asper	spiny sowthistle	kc
Stephanomeria virgata	rod wirelettuce	sc
Taraxacum officinale	common dandelion	sc, og, kc
Tragopogon dubius	yellow salsify	sc, plk, kc
Tragopogon pratensis	jack-go-to-bed-at-noon	og
Uropappus lindleyi	silverpuffs	sc
Wyethia angustifolia	narrowleaf mule's ear	kc, og
Berberidaceae		
Achlys triphylla	sweet after death, vanillaleaf	kc
Berberis [*Mahonia*] *aquifolium*	hollyleaf barberry	og, kc
Berberis [*Mahonia*] *nervosa*	Cascade barberry	sc, kc
Berberis [*Mahonia*] *piperiana*	Piper barberry	sc, og
Berberis [*Mahonia*] *repens*	creeping barberry	og
Vancouveria hexandra	white insideout flower	sc, plk, kc

Table AE -1. Plant Species in the CSNM		
Scientific Name	**Common Name**	**Place**
Betulaceae		
Alnus rhombifolia	white alder	sc, kc
Alnus incana ssp. tenuifolia	thinleaf alder	pbp
Corylus cornuta var. californica	California hazelnut	lsr, og
Boraginaceae		
Amsinckia menziesii var. intermedia	common fiddleneck	sc
Amsinckia menziesii var. menziesii	Menzies fiddleneck	kc
Cryptantha affinis	quill cryptantha	kc
Cryptantha intermedia	Clearwater cryptantha	sc, kc
Cryptantha torreyana	Torrey cryptantha	sc, kc
Cynoglossum grande	Pacific hound's tongue	sc, plk, og, kc
Lithospermum ruderale	western stoneseed, w. gromwell	kc
Myosotis discolor	changing forget-me-not	kc
Pectocarya pusilla	moth combseed	sc
Plagiobothrys cognatus [*scouleri var. hispidulus*]	sleeping popcornflower	sc
Plagiobothrys nothofulvus	rusty popcornflower	sc
Plagiobothrys stipitatus var. micranthus	stalked popcornflower	plk
Plagiobothrys tenellus	Pacific popcornflower	sc, kc
Brassicaceae		
Alyssum alyssoides	pale madwort	sc, kc, og
Arabidopsis thaliana	mouse-ear cress	sc
Arabis breweri	Brewer rockcress	sc
Arabis drummondii	Drummond rockcress	sc
Arabis glabra	tower rockcress	sc, kc
Arabis holboellii	Holboell rockcress	sc, kc
Arabis oregana	Oregon rockcress	sc
Arabis sparsiflora	sicklepod rockcress	kc
Athysanus pusillus	common sandweed	sc, og, kc
Barbarea orthoceras	American yellowrocket	kc
Cardamine nuttallii var. nuttallii	palmate toothwort	sc
Cardamine occidentalis	big western bittercress	pbp
Cardamine oligosperma	little western bittercress	sc, kc
Draba verna	spring draba, whitlowgrass	sc, og
Erysimum capitatum	sanddune wallflower	pr
Idahoa scapigera	oldstem idahoa, scalepod	kc
Isatis tinctoria	dyer's woad	wsa, or
Lepidium campestre	field pepperweed	plk, kc
Phoenicaulis cheiranthoides	wallflower phoeni., daggerpod	kc, pr
Rorripa curvisiliqua	curvepod yellowcress	sc, plk, kc
Thlaspi arvense	field pennycress	kc
Thysanocarpus curvipes	sand fringepod	sc, kc
Cactaceae		
Opuntia polycantha	plains prickly pear	cc
Campanulaceae		
Campanula [*Asyneuma*] *prenanthoides*	California harebell	plk, kc
Campanula scouleri	pale bellflower Scouler harebell	sc, plk, kc
Downingia sp.		kc
Githopsis specularioides	common bluecup	sc
Heterocodon rariflorum	rareflower heterocodon	sc, plk
Caprifoliaceae		
Linnaea borealis	twinflower	kc

Table AE -1. Plant Species in the CSNM		
Scientific Name	**Common Name**	**Place**
Lonicera ciliosa	orange honeysuckle	sc, plk, kc, pr
Lonicera hispidula	pink, hairy honeysuckle	sc, kc, og
Lonicera interrupta	chaparral honeysuckle	sc
Sambucus mexicana [*nigra* ssp. *cerulea*]	blue elderberry	sc, kc, pr
Symphoricarpos albus	common snowberry	sc, pbp, kc, pr, og
Symphoricarpos mollis	creeping snowberry	sc, plk, og, kc
Caryophyllaceae		
Arenaria serpyllifolia	thymeleaved sandwort	sc, kc
Cerastium fontanum ssp. vulgare	common mouse-ear chickweed	sc
Cerastium glomeratum	sticky chickweed	sc
Holosteum umbellatum	jagged chickweed	sc
Minuartia douglasii	Douglas stitchwort	sc
Moehringia macrophylla	bigleaf sandwort	sc, plk, og, kc
Pseudostellaria jamesiana	tuber starwort	sc, kc
Sagina saginoides	arctic pearlwort	sc
Silene campanulata	Red Mountain catchfly	kc
Stellaria media	common chickweed	sc
Stellaria nitens	shining chickweed	sc
Celastraceae		
Pachistima myrsinites	Oregon boxwood	sc, kc, pr
Convolvulaceae		
Calystegia occidentalis	chaparral false bindweed	sc, pr
Convolvulus arvensis	field bindweed	kc, og
Cornaceae		
Cornus glabrata	brown dogwood	sc
Cornus nuttallii	Pacific dogwood	kc
Cornus sericea ssp. sericea	redosier dogwood	sc, plk, kc
Crassulaceae		
Sedum obtusatum	Sierra, obtuse stonecrop	sc
Sedum stenopetalum	wormleaf stonecrop	sc, og, kc
Cucurbitaceae		
Marah oreganus	coastal manroot, wild cucumber	sc, og, kc, pr
Cupressaceae		
Calocedrus decurrens	incense cedar	sc, plk, og, kc
Juniperus occidentalis	western juniper	sc,og, pr, plk, kc
Cyperaceae		
Carex amplifolia	bigleaf sedge	pbp
Carex angustata	widefruit sedge	pdp
Carex aquatalis	water sedge	kc
Carex arcta	northern cluster sedge	plk
Carex athrostachya	slenderbeak sedge	plk
Carex aurea	golden sedge	sc, kc
Carex concinnoides	northwestern sedge	sc
Carex cusickii	Cusick sedge	plk, pbp
Carex densa	dense sedge	og
Carex disperma	soft leaved sedge	og
Carex deweyana ssp. leptopoda [*C. leptopoda*]	taperfruit shortscale sedge	sc, kc
Carex echinata	star sedge	sc
Carex feta	greensheath sedge	plk, pbp
Carex fracta	fragile sheath sedge	plk, pbp, kc
Carex geyeri	Geyer, elk sedge	kc

Table AE -1. Plant Species in the CSNM		
Scientific Name	**Common Name**	**Place**
Carex hoodii	Hood sedge	plk, kc
Carex inops	long stolon sedge	kc
Carex interrupta	greenfruit sedge	plk
Carex laeviculmis	smooth stem sedge	og
Carex livida	livid, pale sedge	pbp
Carex luzulina	woodrush sedge	pbp, kc
Carex microptera	smallwing sedge	plk
Carex mutlicaulis	manystem sedge	og
Carex nebrascensis	Nebraska sedge	jc
Carex nudata	torrent sedge	jc
Carex pachystachya	chamisso, thickhead sedge	plk, pbp, og
Carex pellita	wooly sedge	plk, pbp
Carex praticola	meadow sedge	kc
Carex rossii	Ross sedge	plk, pbp, kc
Carex serratodens (unconfirmed)	sawtooth sedge	sc
Carex simulata	short beaked sedge	jc
Carex stipata	awlfruit sedge	kc
Carex subfusca	brown, rusty sedge	plk, pbp
Carex utriculata [rostrata]	Northwest Territory, beaked sedge	pbp
Carex vesicaria	blister, inflated sedge	plk
Eleocharis acicularis var. acicularis	needle spikerush	plk, pbp, kc
Eleocharis macrostachya [*palustris*]	common spikerush	sc, plk, kc
Eleocharis obtusa	blunt spikerush	plk
Eleocharis palustris	common, creeping spikerush	plk
Scirpus microcarpus	smallfruit bulrush	plk, kc
Scirpus tabernaemontane	soft stem bulrush	jc
Dennstaedtiaceae		
Pteridium aquilinum	bracken fern	plk, kc
Dipsacaceae		
Dipsacus fullonum	fuller's teasel	mu
Dryopteridaceae		
Athyrium filix-femina	common ladyfern	pdp, kc
Cystopteris fragilis	brittle bladderfern	sc, og, kc
Polystichum imbricans	narrowleaf, imbricate swordfern	sc
Polystichum munitum	western swordfern	sc, kc
Woodsia oregana	Oregon cliff fern	sc
Equisetaceae		
Equisteum arvense	field horsetail	pbp, kc, og
Equisetum hyemale	scouringrush horsetail	sc, kc
Ericaceae		
Arbutus menziesii	madrone	plk, kc, lsr
Arctostaphylos nevadensis	pinemat manzanita	kc
Arctostaphylos patula	greenleaf manzanita	sc, kc
Chimaphila menziesii	little prince's pine	sc, kc
Chimaphila umbellata	pipsissewa, common prince's pine	sc, kc
Hemitomes congestum	coneplant, gnome plant	pr
Pterospora andromedaea	woodland pinedrops	kc, og
Pyrola dentata [*P. picta*]	toothed pyrola	kc
Pyrola picta	whitevein wintergreen	sc, kc
Pyrola picta var. aphylla	leafless pyrola	kc
Pyrola secunda [*Orthillia*]	side-bells wintergreen	sc, pr

Table AE -1. Plant Species in the CSNM		
Scientific Name	**Common Name**	**Place**
Euphorbiaceae		
Eremocarpus setigerus [*Croton*]	dove weed, turkey mullein	og
Euphorbia spathulata	warty spurge	kc
Fabaceae		
Astragalus accidens ssp. hendersonii	Henderson milkvetch	sc
Astragalus californicus	California milkvetch	sc
Astragalus purshii var. tincta	Pursh milkvetch	sc
Lathyrus lanszwertii var. tracyi	thickleaf pea	sc
Lathyrus nevadensis	Nevada pea	sc, kc
Lathyrus polyphyllus	leafy peavine	sc, plk, kc
Lathyrus torreyi	Torrey peavine	plk
Lotus corniculatus	birdfoot deervetch	plk, kc
Lotus crassifolius	big deervetch	kc, pr
Lotus denticulatus	meadow lotus	sc
Lotus micranthus	smallflower deervetch	sc, kc
Lotus nevadensis	Nevada deervetch	sc, plk, kc
Lotus oblongifolius	streambank bird's-foot trefoil	pbp
Lotus pinnatus	meadow bird's-foot trefoil	sc, kc
Lotus unifoliatus [*purshianus*]	American bird's-foot trefoil	sc, plk, kc
Lupinus albicaulus	pine lupine	sc, kc
Lupinus albifrons	whiteleaf lupine	sc
Lupinus arbustus	spur lupine	sc
Lupinus bicolor	miniature lupine	sc, kc
Lupinus latifolius	broadleaf lupine	kc
Lupinus lepidus	dwarf lupine	kc
Lupinus leucophyllus	velvet lupine	kc
Lupinus polyphyllus	largeleaf lupine	kc
Melilotus officinalis	yellow sweetclover	pr
Medicago lupulina	black medick	pr
Trifolium albopurpureum	rancheria clover	sc
Trifolium ciliolatum	foothill clover	sc
Trifolium cyathiferum	cup clover	plk, kc
Trifolium dubium	suckling, little hop clover, shamrock	sc, plk, kc
Trifloium eriocephalum	woolyhead clover	kc
Trifolium macrocephalum	largehead clover	sc, kc
Trifolium microcephalum	smallhead, wooly clover	kc
Trifloium oliganthum	fewflower clover	kc
Trifolium pretense	red clover	kc
Trifolium repens	white clover	sc, kc
Trifolium variegatum	whitetip clover	sc, kc
Vicia americana	American vetch	sc, plk, kc
Fagaceae		
Chrysolepis chrysophylla	giant chinquapin	plk, kc
Quercus garryana	Garry oak, Oregon white oak	sc, kc, pr, og
Quercus kelloggii	California black oak	sc, kc, og

Table AE -1. Plant Species in the CSNM		
Scientific Name	**Common Name**	**Place**
Fumariaceae		
Dicentra uniflora	longhorn steer's head	pru
Dicentra formosa	Pacific bleeding heart	sc, kc
Garryaceae		
Garrya fremontii	bearbrush	og
Gentianaceae		
Swertia albicaulis [*Frasera a.*]	whitestem frasera	kc, pr
Geraniaceae		
Erodium cicutarium	redstem storksbill, filaree	sc, og, kc
Grossulariaceae		
Ribes binominatum	ground gooseberry	sc
Ribes inerme ssp. klamathense	Klamath gooseberry	sc
Ribes lacustre	prickly current	sc, kc
Ribes lobbii	gummy gooseberry	sc, kc, pr
Ribes roezlii	Serria gooseberry	kc
Ribes sanguineum	redflower current	sc, kc, og
Ribes velutinum	desert gooseberry	sc, pr
Haloragaceae		
Myriophyllum verticillatum	whorlleaf watermilfoil	plk
Hydrangeaceae		
Philadelphus lewisii	Lewis mockorange	sc, kc
Whipplea modesta	whipplevine	sc, kc
Hydrophyllaceae		
Hydrophyllum capitatum	ballhead waterleaf	kc
Hydrophyllum fendleri var. albifrons	Fendler waterleaf	sc
Hydrophyllum occidentale	California waterleaf	sc, pr
Nemophila parviflora	smallflower nemophila	sc, og, kc, pr
Nemophila pedunculata	meadow nemophila	sc, og, kc
Phacelia hastata	silverleaf phacelia	sc, pr
Phacelia heterophylla	varileaf phacelia	sc, og, kc
Phacelia linearis	narrowleaf phacelia	sc
Phacelia ramosissima var. eremophila	branched phacelia	sc
Hypericaceae		
Hypericum anagalloides	tinker's penny	sc, pbp, kc
Hypericum perforatum	Klamath weed	sc, plk, pbp, kc,og
Iridaceae		
Iris chrysophylla	yellow iris	sc, og, kc
Sisyrinchium bellum	western blue-eyed grass	kc, og
Sisyrinchium douglasii [*Olsynium*]	Douglas grass widow	kc
Sisyrinchium idahoensis	Idaho blue-eyed grass	kc
Juncaceae		
Juncus bolanderi	Bolander rush	plk, pbp
Juncus brachyphyllus	tuftedstem rush	plk, kc
Juncus bufonius	toad rush	kc
Juncus effusus var. gracilis	soft rush	plk, kc
Juncus effusus var. pacificus	Pacific rush	plk, pbp,og
Juncus ensifolius	swordleaf rush	plk, pbp, kc
Juncus hymienditus	Herman dwarf rush	kc
Juncus orthophyllus	straightleaf rush	pbp, kc
Juncu oxymeris	pointed rush	kc
Juncus tenuis	slender rush	plk, pbp, kc

Table AE -1. Plant Species in the CSNM		
Scientific Name	**Common Name**	**Place**
Luzula campestris	field woodrush	sc, plk
Luzula comosa	common woodrush	kc
Lamiaceae		
Agastache urticifolia	nettleleaf horsemint	sc, pr
Mentha arvensis	wild mint	plk
Monardella glauca	pale, gray monardella	cm
Monardella odoratissima	mountain monardella,	sc, kc, pr
Prunella vulgaris	common self-heal, heal-all	og, plk
Satureja douglasii [*Clinopodium*]	yerba buena	sc, kc
Scutellaria angustafolia	narrowleaf skullcap	kc
Scutellaria antirrhinoides	nose, snapdragon skullcap	sc
Scutellaria siphocampyloides	skullcap	sc
Stachys ajugoides var. rigida [*S. rigida* var. *rigida*]	rough hedgenettle	sc, plk, pbp
Lemnaceae		
Lemna minor	common duckweed	plk, pbp, kc
Lemna minima	least duckweed	plk
Lemna trisulca	star, ivyleaf duckweed	plk
Spirodela polyrrhiza	common duckmeat, great d.weed	plk
Lentibulariaceae		
Utricularia vulgaris	common bladderwort	plk
Liliaceae		
Allium acuminatum	tapertip, Hooker onion	sc, kc
Allium amplectens	narrowleaf, paper onion	sc, kc
Allium siskiyouense	Siskiyou onion	hb, pdo
Allium tolmiei	Tolmie onion	kc
Brodiaea coronaria	harvest clusterlily	og
Calochortus greenei	Greene's mariposa lily	kc, pru, mu
Calochortus tolmei	Tolmei cat's ear	og, kc
Camassia quamash	small, common camas	kc
Clintonia uniflora	one-flower clintonia, beadlily	kc
Dichelostemma capitatum	bluedicks	sc, kc
Dichelostemma congestum	ookow	kc
Dichelostemma multiflorum	roundtooth snakelily, wild hyacinth	sc
Disporum hookeri	drops-of-gold, Oregon fairybell	sc, kc, pr, og
Erythronium hendersonii	Henderson fawnlily	og
Erythronium klamathense	Klamath fawnlily	pk, sm
Fritillaria affinis	checker lily	sc, og
Fritillaria gentneri	Gentner fritillary	wsa
Fritillaria glauca	Siskiyou fritillary	
Fritillaria pudica	yellow fritillary, yellow bells	kc
Fritillaria recurva	scarlet fritillary	sc, og
Lilium columbianum	Columbia lily	kc
Lilium pardalinum ssp. vollmeri	Vollmer lily	sc
Lilium washingtonianum ssp. purpurascens	Washington lily	sc, kc, pr, og
Smilacina [*Maianthemum*] *racemosa*	feathery false lily of the valley	sc, plk, kc, pr
Smilacina [*Maianthemum*] *stellata*	starry false lily of the valley	sc, kc
Streptopus amplexifolius	claspleaf twistedstalk	sc, kc
Trillium albidum	giant white wakerobin	sc, pr
Trillium ovatum	Pacific trillum	sc, kc, pr
Triteleia hendersonii	Henderson triteleia	kc

Table AE -1. Plant Species in the CSNM		
Scientific Name	**Common Name**	**Place**
Triteleia hyacinthina	white brodiaea	sc, plk, kc, og
Veratrum californicum	California false hellebore	kc, sm
Xerophyllum tenax	common beargrass	kc
Zigadenus venenosus	meadow death camas	kc, og
Limnanthaceae		
Floerkea proserpinacoides	false mermaidweed	pr
Limnanthes bellingeriana	Bellinger meadowfoam	og, kc
Linaceae		
Linum lewisii	prairie, Lewis flax	pr
Malvaceae		
Iliamna bakeri	Baker wild hollyhock, globemallow	kc
Sidalcea malviflora	dwarf checkerbloom, ch. mallow	plk, kc
Sidalcea oregana ssp. spicata	Oregon checkerbloom, ch. mallow	sc
Nymphaeaceae		
Nuphar leutea ssp. polysepala	yellow pond-lily	plk, pbp
Oleaceae		
Fraxinus latifolia	Oregon ash	plk, pbp, jc, kc, og
Onagraceae		
Circaea alpina	Enchanter's nightshade	sc, kc
Clarkia gracilis	slender clarkia	sc, kc
Clarkia purpurea ssp. quadrivulnera		sc
Clarkia rhomboidea	tongue clarkia	sc, kc
Gayophytum diffusum		kc
Epilobium [*Chamerion*] *angustifolium*	fireweed	kc
Epilobium brachycarpum	tall annual fireweed	sc, plk, kc
Epilobium ciliatum ssp. ciliatum	fringed willowherb	sc, pbp, kc
Epilobium densiflorum	dense flower willowherb	kc
Epilobium glaberrimum	glaucus willowherb	sc
Epilobium minutum	chaparral willowherb	sc, kc
Orchidaceae		
Calypso bulbosa	fairy slipper	sc, kc
Corallorhiza maculata	spotted coralroot	sc, plk, kc, pr
Corallorhiza striata	hooded coralroot	sc
Cypripedium fasciculatum	clustered lady's slipper	kc
Cypripedium montanum	mountain lady's slipper	sc, kc
Cephalanthera (Eburophyton) austinae	phantom orchid	sc, plk, kc, pr
Goodyera oblongifolia	rattlesnake plantain	sc, kc, og
Piperia transversa	royal rein orchid	sc
Piperia unalascencis	slender-spire rein orchid	kc
Planthera leucostachys	Sierra bog orchid	pbp, kc
Orobanchaceae		
Orobanche uniflora	one-flower broomrape	sc
Paeoniaceae		
Paeonia brownii	western peony	kc
Papaveraceae		
Eschscholtzia californica	California poppy	sc
Pinaceae		
Abies concolor	white fir	sc, plk, og, pr
Abies magnifica var. shastensis	Shasta red fir	pru
Pinus contorta	lodgepole pine	kc

Table AE -1. Plant Species in the CSNM		
Scientific Name	**Common Name**	**Place**
Pinus lambertiana	sugar pine	og, kc
Pinus ponderosa	ponderosa pine	sc, og, kc
Pseudotsuga menziesii	Douglas-fir	sc, plk, og, kc
Plantaginaceae		
Plantago lanceolata	narrowleaf plantain	kc
Plantago major	broadleaf plantain	sc, plk, kc
Poaceae		
Achnatherum (Stipa) lemmonii	Lemmon needlegrass	sc, plk, kc
Agrostis capillaris	colonial bentgrass	kc
Agrostis exarata	spike bentgrass	plk, pbp
Agrostis scabra	rough bentgrass	plk
Aira caryophyllea	silver hairgrass	sc, kc
Alopecurus aequalis	shortawn foxtail	plk
Alopecurus geniculatus	water foxtail	plk, pbp
Alopecurus pratensis	meadow foxtail	kc
Arrhenetherum elatius	tall oatgrass	kc
Bromus carinatus	California brome	sc, plk, kc
Bromus diandrus	ripgut brome	sc
Bromus hordeaceus	soft brome	sc, kc
Bromus japonicus	Japanese brome	sc, kc
Bromus laevipes		kc
Bromus madritensis ssp. rubens	foxtail chess	sc
Bromus secalinus	chess	sc
Bromus sterilis	sterile brome	sc
Bromus tectorum	cheat grass	sc, og, kc
Bromus vulgaris	Columbia brome	sc, kc
Calamagrostis canadensis	Canada reed grass	pbp
Cynosurus echinatus	hedgehog dogtail	sc, kc
Dacytlis glomeratus	orchard grass	kc
Danthonia californica	California oatgrass	plk, pbp, og, kc
Danthonia unispicata	one-spike oatgrass	kc
Deschampsia cespitosa	tufted hairgrass	kc
Deschampsia danthanoides	annual hairgrass	sc, kc
Deschampsia elongata	slender hairgrass	sc, plk, kc
Elymus elymoides	squirreltail	sc, kc
Elymus glaucus	blue wildrye	sc, plk, pbp, og, kc
Elytrigia intermedia	intermediate wheatgrass	sc, kc
Festuca arundinacea	tall fescue	og, kc
Festuca californica	California fescue	sc, og, kc
Festuca idahoensis	Idaho fescue	sc, kc, og
Festuca occidentalis	western fescue	sc, kc, og
Festuca pretensis	meadow fescue	kc
Festuca subulata	bearded fescue	kc
Glyceria elata	tall mannagrass	sc, plk, pbp, kc
Glyceria leptostachya	managrass	pbp
Hordeum brachyantherum ssp. californicum	meadow barley	sc, plk, pbp
Koeleria macrantha (cristata)	prairie junegrass	sc, kc
Melica harfordii	Harford oniongrass	sc
Melica spectabilis	purple oniongrass	kc
Melica subulata	Alaska oniongrass	sc, kc
Phleum pratense	timothy	plk, jc, kc, og

Table AE -1. Plant Species in the CSNM		
Scientific Name	**Common Name**	**Place**
Poa bulbosa	bulbous bluegrass	sc, plk, og, kc
Poa compressa	Canada bluegrass	kc
Poa howellii	Howell bluegrass	sc
Poa palustris	fowl bluegrass	sc
Poa pratensis	Kentucky bluegrass	sc, kc
Poa secunda	one-sided bluegrass	sc, kc, og
Pseudoegneria spicata ssp. spicata	bluebunch wheatgrass	sc
Taeniatherum caput-medusae	medusahead	sc, og, kc
Torreyochloa pallida var. pauciflora	weak meadowgrass	plk, pbp
Trisetum canescens	tall trisetum	sc, kc
Trisetum spicatum	downy trisetum	plk
Vulpina bromoides	brome fescue	kc
Vulpia microstachys	Nuttall fescue	sc, og, kc
Vulpia myuros	rattail fescue	sc, kc
Polemoniaceae		
Collomia grandiflora	grand collomia	sc, plk, kc, og
Collomia heterophylla	variableleaf collomia	sc
Gilia capillaris	minature, smooth-leaf gilia	sc
Gilia capitata	bluehead gilia	sc, og, kc, pr
Ipomopsis aggregata	scarlet gilia	sc, pr
Linanthus bicolor	true babystars, bicolor linanthus	sc, kc
Linanthus bolanderi	Bolander linanthus	sc
Linanthus harknessii	Harkness linanthus	sc, plk, kc
Navarretia divericata	divaricate, mountain navarretia	kc
Navarretia intertexta var. intertexta	needleleaf navarretia	plk, kc
Phlox adsurgens	northern, woodland phlox	kc
Phlox gracilis	slender, pink annual phlox	sc, kc
Phlox speciosa	showy phlox	kc, pr
Polemonium carneum	royal Jacob's ladder, salmon pol.	sc, pr
Polygonaceae		
Eriogonum elatum	tall wooly buckwheat	kc
Eriogonum nudum	barestem buckwheat	sc, kc
Eriogonum umbellatum	sulphur-flower buckwheat	sc, kc, pr, og
Eriogonum sphaerocephalum	rock buckwheat	pr
Polygonium arenastrum (aviculare)	oval-leaf, common knotweed	kc
Polygonum douglasii	Douglas knotweed	sc,kc
Polygonum polygaloides	milkwort knotweed	kc
Rumex acetosella	common sheep sorrel, sour dock	plk, kc
Rumex crispus	curly dock	plk, pbp, kc
Rumex salicifolia	willow dock	kc
Portulacaceae		
Claytonia [*Montia*] *parviflora*	littleleaf, smallflower miner's lettuce	sc, kc
Claytonia perfoliata	miner's lettuce	sc
Claytonia rubra ssp. rubra	redstem springbeauty	sc, og
Claytonia sibirica	Siberian springbeauty candy flower	sc, kc, pr
Montia dicomota	dwarf montia	kc
Montia fontana	annual water minerslettuce	kc
Montia linearis	narrowleaf minerslettuce	kc
Portulaca oleracea	little hogweed, common purslane	kc

Table AE -1. Plant Species in the CSNM		
Scientific Name	**Common Name**	**Place**
Potomogetonaceae		
Potomogeton crispus	curly pondweed	jc
Potomogeton nutans	floating pondweed	plk
Primulaceae		
Dodecatheon sp.		kc
Trientalis latifolia [*borealis* var. *latifolia*]	starflower	og, kc, pr
Pteridaceae		
Cheilanthes gracillima	lace lipfern	sc, og
Pellaea brachyptera	Sierra cliffbrake	sc, og
Pentagramma [*Pityrogramma*] *triangularis*	goldback fern	sc
Ranunculaceae		
Aconitum columbianum	Columbia monkshood	kc
Actea rubra	red baneberry	kc, sm, pr
Anemone deltoidea	Columbian windflower	sc, kc, pr
Aquilegia formosa	western columbine	sc, kc, pr
Clematis ligusticifolia	western white clematis	sc
Delphinium menziesii	Menzies larkspur	kc, og
Delphinium nuttallianum	twolobe meadow, larkspur	sc
Isopyrum [*Enemion*] *stipitatum*	Siskiyou false rue anemone	sc, kc
Myosurus apetalus	bristly, least mousetail	kc
Ranunculus aquatilis var. hispidulus	whitewater crowfoot	plk, jc
Ranunculus flammula	greater creeping spearwort	plk
Ranunculus occidentalis	western buttercup	sc, og, kc
Ranunculus orthorhynchus	straightbreak buttercup	kc
Ranunculus repens	creeping buttercup	sc
Ranunculus uncinatus	woodland buttercup	sc, pbp, kc
Rhamnaceae		
Ceanothus cuneatus	buckbrush, wedgeleaf	sc, og, kc
Ceanothus integerrimus	deerbrush, wild lilac	sc, plk, og, kc, pr
Ceanothus prostratus	squaw carpet	plk, kc, og
Ceanothus sanguineus	redstem ceanothus	kc
Ceanothus velutinus	snowbrush	plk, kc
Rhamnus [*Frangula*] *purshiana*	cascara, Pursh buckthorne	sc
Rosaceae		
Amelanchier alnifolia	Saskatoon, western serviceberry	sc, plk, og, kc
Amelanchier utahensis	Utah serviceberry	sc
Aphanes occidentalis	western lady's mantle	sc, kc
Cercocarpus betuloides	birchleaf mountain-mahogany	sc, og, kc
Cercocarpus ledifolius	curlyleaf mountain-mahogany	sm, kc, hb, pdo
Crataegus douglasii	black hawthorn	sc, kc, og
Fragaria vesca	woodland strawberry	plk, og, kc
Fragaria virginiana	Virginia strawberry	kc
Geum macrophyllum	largeleaf avens	plk, pbp, kc
Holodiscus discolor	oceanspray	sc, kc, pr, og
Holodiscus microphyllus	dwarf oceanspray	sc
Horkelia congesta	Sierra, shaggy horkelia	kc
Horkelia daucifloia	carrotleaf horkelia	kc
Oemleria cerasiformis	Indian plum, osoberry	sc, kc
Physocarpus capitatus	Pacific ninebark	sc
Potentilla gracillis	slender cinquefoil	kc
Potentilla glandulosa	sticky cinquefoil	sc, plk, kc

Table AE -1. Plant Species in the CSNM		
Scientific Name	**Common Name**	**Place**
Prunus emarginata	bitter cherry	sc, kc
Prunus subcordata	Klamath plum	sc, og, kc
Prunus virginiana var. demissa	western chokecherry	sc, kc, og
Purshia tridentata	antelope bitterbrush	mu, og
Rosa californica	California wildrose	sc
Rosa gymnocarpa	dwarf, little wood rose	sc, plk, kc, og
Rosa cf. woodii	Wood's rose	plk
Rubus leucodermis	whitebark, blackcap raspberry	sc, kc
Rubus parviflorus	thimbleberry	sc, kc, og
Rubus ursinus	California, trailing blackberry	sc,kc
Sanguisorba minor	small, garden burnet	kc
Sanguisorba occidentalis	western burnet	plk, kc
Spiraea douglasii	Douglas spiraea	plk, kc, og
Rubiaceae		
Galium aparine	stickywilly, catchweed bedstraw	sc, og, kc
Galium biflolium	twinleaf, low mountain bedstraw	kc
Galium boreale	northern bedstraw	kc
Galium oreganum	Oregon bedstraw	kc
Galium parisiense	wall, small weedy bedstraw	sc
Galium porrigens	climbing bedstraw	kc
Galium trifidum	graceful, small bedstraw	kc
Galium triflorum	fragrant bedstraw	sc, kc
Salicaceae		
Populus balsamifera ssp. trichocarpa	black cottonwood	sc
Populus tremuloides	quaking aspen	plk
Salix exigua	narrowleaf willow	sc
Salix lasiolepis	arroyo willow	sc
Salix lucida ssp. lasiandra	Pacific, shining willow	sc, plk, kc
Salix scouleriana	Scouler willow	sc, plk, kc
Saxifragaceae		
Heuchera micrantha	crevice, small flower alumroot	sc, kc
Lithophragma affine	San Francisco woodland-star	sc
Lithophragma parviflorum	smallflower woodland-star	sc, kc, pr
Mitella diversifolia	angleleaf mitrewort	sc
Mitella trifida	threeparted, threetooth mitrewort	sc, kc, pr
Saxifraga ferruginea	russethair, rusty saxifrage	kc
Saxifraga integrifolia	wholeleaf, northwestern saxifrage	sc, kc
Tellima grandiflora	bigflower tellima, large fringecup	kc
Tolmiea menziesii	youth on age, pig-a-back plant	sc, kc
Scrophulariaceae		
Castilleja applegatei	wavyleaf Indian paintbrush	sc, kc
Castilleja [Orthocarpus] attenuata	attenuate Indian paintbrush	kc
Castilleja pruinosa	frosted Indian paintbrush	sc, kc
Castilleja [Orthocarpus] tenuis	hairy Indian paintbrush	kc, pr
Collinsia grandiflora	giant blue eyed Mary	pr
Collinsia linearis	narrowleaf blue eyed Mary	sc, kc
Collinsia parviflora	smallflower blue eyed Mary	sc, og, kc
Collinsia rattanii	sticky blue eyed Mary	sc, og
Mimulus alsinoides	wingstem monkeyflower	sc
Mimulus guttatus	seep, yellow monkeyflower	sc, pbp, kc, og
Mimulus moschatus	muskflower	sc, plk, kc

Table AE -1. Plant Species in the CSNM		
Scientific Name	**Common Name**	**Place**
Orthocarpus bracteosus	rosy owl's-clover	og
Pedicularis densiflora	Indian-warrior	kc
Pedicularis racemosa	sickletop lousewort	kc
Penstemon deustus	scabland, hotrock penstemon	sc, og, kc, pr
Penstemon azureus var. *azureus* [*parvulus*]	azure penstemon	pr
Penstemon procerus	littleflower penstemon	kc
Penstemon roezlii	roezl, purple penstemon	sc, kc
Penstemon speciosus	showy penstemon	sc
Scrophularia lanceolata	lanceleaf figwort	sc
Synthyris reniformis	snowqueen, grouse flower	sc, plk, kc
Tonella tenella	smallflower tonella	sc, kc
Verbascum blatterae	moth mullein	kc
Verbascum thapsis	common, wooly mullein	plk, kc, og
Veronica americana	American brooklime, speedwell	pbp, kc
Veronica peregrina ssp. xalapensis	neckweed	sc
Veronica persica	birdeye, winter speedwell	sc
Veronica scutellata	skullcap speedwell	plk
Veronica serpyfolia	thymeleaf speedwell	kc
Selaginellaceae		
Selaginella wallacei	Wallace spikemoss	sc
Solanaceae		
Solanum parishii	Parish nightshade	sc, kc
Taxaceae		
Taxus brevifolia	western yew	kc
Typhaceae		
Sparganum emersum var. emersum [*angustifolium*]	narrowleaf, simple-stem burweed	plk, pbp
Typha latifolia	broadleaf cattail	plk,, pbp, jc, kc, mu, og

Table AE -1. Plant Species in the CSNM		
Scientific Name	**Common Name**	**Place**
Valerianaceae		
Plectritis brachystemum [*congesta* ssp. *b.*]	shortspur seablush	sc
Plectritis congesta	shortspur seablush, rosy cornsalad	sc, kc
Valeriana sitchensis	Sitka valerian	pr
Valerianella locusta	Lewiston, European cornsalad	og, kc
Verbenaceae		
Verbena lasiostachys	western vervain	sc
Violaceae		
Viola douglasii	Douglas golden violet	kc
Viola glabella	pioneer, stream violet	sc, kc
Viola praemorsa	canary, Astoria violet	kc
Viola purpurea	goosefoot, purpletinged violet	kc
Viola sheltonii	Shelton violet	sc, og, kc
Viscaceae		
Arceuthobium abietinum	fir dwarf mistletoe	sc
Arceuthobium douglasii	Douglasfir dwarf mistletoe	sc
Arceuthobium campylopodium	western dwarf mistletoe	sc
Phorodendron densum	dense mistletoe	sc
Phorodendron libocedri	incense cedar mistletoe	sc
Phorodendron villosum	Pacific, oak mistletoe	sc
Vitaceae		
Vitis californica	California wild grape	sc

Appendix F - Introduced Plant Species in CSNM

Table AD -1. Introduced Plant Species

Scientific Name	Common Name	Scientific Name	Common Name
Agropyron intermedium	intermediate wheatgrass	*Holosteum umbellatum* ssp. *umbellatum*	jagged chickweed
Agrostis tenuis	colonial bentgrass		
Aira caryophyllea	silver European hairgrass	*Hordeum marinum*	Mediterranean barley
Alyssum alyssoides	pale madwort	*Hypericum perforatum*	klamathweed
Anthemis cotula	mayweed	*Hypochaeris radicata*	false-dandelion
Anthriscus caucalis	bur-chervil	*Isatis tinctoria*	dyer's woad
Arenaria serpyllifolia ssp. *serpyllifolia*	thymeleaf sandwort	*Lactuca serriola*	prinkly lettuce
		Lactuca seligna	least lettuce
Aribidopsis thaliana	mouse-ear cress	*Lepidium campestre*	field pepperweed
Brassica nigra	field mustard	*Leucanthemum vulgare*	oxeye daisy
Bromus diandrus	ripgut grass	*Linaria dalmatica*	dalmatian toadflax
Bromus hordeaceus	soft brome	*Lolium perenne*	perenn ial rye
Bromus japonicus	Japanese b rome	*Lolium multiflorum*	annual ryegrass
Bromus madritensis ssp. *rubens*	foxtail chess	*Lotus corniculatus*	bird's foot trefoil
		Lythrum salicaria	purple loosestr ife
Bromus secalinus	rye brome	*Melilotus alba*	white sweet-clover
Bromus sterilis	poverty bro me	*Mentha pulegium*	pennyroyal
Bromus tectorum	cheat grass	*Phleum pratense*	timothy
Capsella bursa-pastoris	shepard's purse	*Plantago major*	common plantain
Centaurea maculosa	spotted knapweed	*Plantago lanceolata*	English plantain
Centaurea pratensis	meadow knapweed	*Poa palustris*	fowl bluegrass
Centaurea solstitialis	yellow star-thistle	*Poa bulbosa*	bulbous bluegrass
Centaurea diffusa	diffuse knapweed	*Poa pratensis* ssp. *pratensis*	Kentucky bluegrass
Centaurium erythraea	European centaury	*Prunella vulgaris* var. *vulgaris*	self-heal
Cerastium glomeratum	mouse-ear chickweed		
Cerastium fontanum ssp. *vulgare*	big chickweed	*Ranunculus repens*	creeping buttercup
		Rubus discolor	Himalayan blackberry
Chenopodium botyrs	Jerusalem-oak goosefoot	*Rumex acetosella*	sheep sorrel
Cichorium intybus	chicory	*Rumex crispus*	curly dock
Cirsium arvense	Canada thistle	*Sonchus asper*	prickly sow-thistle
Cirsium vulgare	bull thistle	*Stellaria media*	common chickweed
Convolvulus arvensis	field bindweed	*Taeniatherum caput-medusae*	medusahead
Conyza canadensis	horseweed		
Crepis capillaris	smooth hawksbeard	*Taraxacum officinale*	common dandelion
Cuscuta pentagona	dodder	*Torilis arvensis*	spreading hedgeparsley
Cynosurus echinatus	hedgehog dogtail	*Tragopogon dubius*	yellow salsify
Dactylis glomerata	orchard grass	*Tragopogon porrifolius*	blue salsify
Daucus carota	Queen Anne's lace	*Trifolium hirtum*	rose clover
Dianthus armeria	Deptford pink	*Trifolium pratense*	red clover
Dipsicus sylvestris	teasel	*Trifolium repens*	white clover
Elytrigia intermedia ssp. *intermedia*	intermediate wheatgrass	*Trifolium dubium*	shamrock
		Verbascum blattaria	moth mullein
Erodium cicutarium	redstem stork's bill	*Verbascum thapsus*	flannel mullein
Festuca arundinaceae	tall fescue	*Veronica persica*	Persian speedwell
Galium parisiense	wall bedstraw	*Vulpia bromoides*	brome fescue
Geranium molle	dovefoot geranium	*Vulpia myuros* var. *hirsuta*	rat-tail fescue
Holcus lanatus	velvet-grass		

Appendix G- Soda Mountain WSA Fire Management Plan

BUREAU OF LAND MANAGEMENT
MEDFORD DISTRICT OFFICE
3040 Biddle Road
Medford, Oregon 97504

March 16, 1987

MEMORANDUM

TO:State Director, 944
FROM:District manager, Medford

SUBJECT:Fire Management Plan for Wilderness Study Areas

Attached is the Fire Management Plan for the Mountain Lakes and Soda Mountain Wilderness Study Areas. The Plan was prepared in response to Instruction Memorandum No. OR-87-143.

There are two major points about the plan that I would like to emphasize. First, the fire management policies and guidance stated in the plan meet or exceed the Bureau's Interim Management Plan for Wilderness Study Areas and the Field Guide for Management Actions in Wilderness Study Areas. Second, the Soda Mountain WSA, because of its established fire dependent ecosystem, presents an opportunity for us to establish an effective wilderness fire management program.

Both environmental groups and resource managers have realized that the total exclusion of fire may be more damaging to an ecosystem than periodic burning. In the years ahead, using this plan as a starting point, I hope we will more fully utilize fire as a wilderness management tool.

David A. Jones

Attachment:
Fire Management Plan

SODA MOUNTAIN, MOUNTAIN LAKES WILDERNESS STUDY AREAS FIRE MANAGEMENT PLAN 1987

Prepared by: Clay W. Moore, Fire Management Specialist, 3/16/87

Reviewed by: Dorothy Mason, Assistant Area Manager, 3/17/87

Fred Tomlins, Outdoor Recreation Planner, 3/18/87

L. Roger Van Buskirk, Fire Management Officer, 3/17/87

Recommended by:Lance Nimmo, Area Manager, 3/17/87

David A. Jones, District Manger, 3/18/87

Approved by: Charles W. Lusher, State Director, 6/11/87

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INTRODUCTION

This plan will provide direction and guidance to Bureau of Land Management (BLM) managers, Oregon State Department of Forestry (OSDF), U.S. Forest Service (USFS), and California Division of Forestry (CDF) fire protection personnel. The plan is designed to be of a protective, interim nature until the Soda Mountain and Mountain Lakes wilderness study areas (WSA) are either designated as wilderness or withdrawn from further study.

MANAGEMENT OBJECTIVE

In accordance with the Interim Management Plan (IMP) for wilderness study areas, prepared in 1979 and revised in 1983, the BLM and responsible protection agencies will continue all presuppression, suppression and post-suppression fire activities in wilderness study areas, using caution to avoid unnecessary impairment of the areas suitability for preservation as wilderness.

LEGAL DESCRIPTIONS

Soda Mountain WSA: The boundary of the Soda Mountain WSA, encompassing 5,640 acres, is defined as beginning at the southwest corner of Section 34, T. 40 S., R. 3 E., thence east along a line for one-quarter mile, thence north along a line for one-half mile, thence east along a line for one-quarter mile, thence north along a line for one-half mile, thence east along a line to the northeast corner Section 34, T. 40 S., R. 3 E., thence in an approximate southeasterly direction along the Pacific Power and Light Co. 115 KV powerline to where it intersects the Lone Pine Ridge Road on the east line of Section 12, T. 41 S., R. 3 E., thence in a westerly and northerly direction along the Lone Pine Ridge Road to where it intersects the Pilot Rock Jeep Road in the southwest portion of Section 31, T. 40 S., R. 3 E., thence east along the Pilot Rock Jeep Road to the northwest corner of Section 32, T. 40 S., R. 3 E., thence south along a line for one-quarter mile, thence S 870E to the east line of Section 35, T. 40 S., R. 3 E., thence south along a line to the point of beginning.

Because of the very irregular shape of this WSA, and prior use of the Lone Pine Ridge and Pilot Rock Jeep Roads for fire protection purposes, these road shall be considered the WSA boundary for fire management purposes.

Mountain Lakes WSA: The boundary of the Mountain Lakes WSA, encompassing 334 acres of public land, is defined as beginning at the northwest corner of Section 31, T. 37 S., R. 7 E., thence along a line for one-half mile, thence south along a line for one mile, thence west along a line to the southwest section corner of Section 30, T. 37 S., R. 7 E., thence north along a line to the point of beginning.

GENERAL DESCRIPTION

Soda Mountain WSA: The study area lies on the steep, south-facing slopes of Soda Mountain. It is comprised of ridges and peaks ranging in elevation from 2,800 to 6,000 feet. There are three major drainages bisecting the WSA, Camp Creek, Dutch Oven Creek, and Salt Creek. Soils consist of Skookum very cobbly clay and Heppsie clay below 4,000 feet with the Skookum series being the most common. McNull gravelly loam, Woodseye stony loam and McMullin-Rock outcrop are generally found at the 3,000 to 4,200 foot elevations; the McNull series would be the most common soil type found at this elevation. Farva cobbly loam and Hobit loam soil types are found at the 4,200 to 6,000 feet elevation with the Farva series being the most common soil type. Vegetation in the WSA consists primarily of perennial and annual grasses, shrubs and forbs at the lower elevations (2,800 to 3,500 feet). Shrubs and scattered patches of timber dominate at the higher elevations. Tree species such as Ponderosa Pine (*Pinus ponderosa*), Douglas-fir (*Pseudotsuga menziesii*), and Incense Cedar (*Libocedrus decurrens Torr*), are mostly found on slopes which have a northerly to westerly aspect.

Mountain Lakes WSA: The Mountain Lakes WSA is east of, and adjacent to the Mountain Lakes Wilderness Area administered by the Dept. of Agriculture, U.S. Forest Service. The study area lies on the steep east slope of Aspen Butte and is isolated from most other BLM administered land. Elevation of the area ranges from 5,000 to 6,300 feet. Soils in the WSA have a parent material of fine grained andesitic basalt, and are classed as Woodcock stony loam on the lower third of the WSA, and Oatman cobbly loam at the higher elevations. Vegetation of the study area is classed as being in the mixed conifer zone. Primary forest species found are White Fir (*Abies Concolor*), Douglas-fir, Ponderosa Pine and Shasta Red Fir (*Abies magnifica shastensis*). White Fir, Douglas Fir and Ponderosa Pine occur at 5,200 to 5,600 feet elevation. White Fir and Shasta Red Fir are dominant at 5,600 to 6,200 feet. This forest type is characteristically broken by brush patches consisting of Golden Chinquapin (*Castanopsis chrysophylla*), and Greenleaf Manzenita (*Arctostaphylos patula*). Pinemat Kinnikinnick (*Arctostaphylos uva-ursi*) is the ground cover type most commonly found in the Shasta Red Fir and White Fir zones.

From field examination, standing timber volume is estimated to be approximately 7.5 million board feet. No threatened or endangered plant species have been found within the Mountain Lakes WSA.

THE NEED TO PREVENT IMPAIRING ACTIONS, AND EXISTING WILDERNESS CHARACTERISTICS

The need to prevent impairing actions: The 1976 Federal Land Policy and Management Act (FLPMA) directs the BLM to manage Wilderness Study Areas in a manner which preserves their suitability for wilderness preservation, except in cases where the safety of persons or personal property are immediately threatened. For fire management considerations Immediately threatened shall mean the fire may cause damage to life or property within the same burning period. The BLM must ensure that proposed or mandatory fire management actions shall not create a situation that would impair the wilderness suitability of the area.

Existing Wilderness Characteristics, Soda Mountain WSA: Steep terrain, dense brush fields, limited stands of commercial timber and difficult access have all contributed to keeping this area in an essentially natural state. The three major drainages, Camp Creek, Dutch Oven Creek and Salt Creek, that bisect the area combined with dense vegetation provide topographic screening. The area provides outstanding opportunities for observing birds and other animals. Water is abundant and scenic vistas are numerous. The Pacific Crest National Scenic Trail borders the northwest portion of the study area. The south slopes are deer winter range with the southeastern portion designated as critical deer winter range. Wilderness-associated game species found in the area include black bear, mountain lion, bobcat and golden eagles. There is great ecological diversity in the area and it is suspected that *Calochorus greenei* and *Cirsium ciliolatum*, which are both candidates for the threatened or endangered federal lists, may be found in the WSA. (If observed, these plant species are to receive the same protection as federally listed threatened or endangered species).

Existing Wilderness Characteristics, Mountain Lakes WSA: There is a direct relationship between this WSA and the existing Mountain Lakes Wilderness Area. The fact that the two are adjacent is the reason this area is being studied. if designated as wilderness at the completion of the study, the area would help maintain the integrity of the Mountain Lakes Wilderness Area. When considered as an addition to the existing wilderness area, the Mountain Lakes WSA offers outstanding opportunities for solitude and primitive

recreation in generally natural conditions. From an ecological view there are no unique features in the area. The primary uses of the area are currently wildlife habitat, watershed protection, hunting and back-country hiking. The steep slopes and limited access, has helped maintain the natural appearance of this area.

NATURAL ROLE OF FIRE AND FIRE CHARACTERISTICS

Soda Mountain WSA: Plant communities in this area are dynamic. In the past, fire has been a major natural component that ensured change. Though a detailed fire history study of the Soda Mountain WSA has not been undertaken, sufficient data has been collected so the role of fire and fire characteristics of the area can be discussed in generalized terms. Plant communities found in the area are classed as the Sclerophyllous hardwood type. Dominant genera include Arctosaphylos, Ceanothus and Quercus. These plants are characterized by extensive root systems, dense rigid branching and small leaves. Sprouting after fire is the most common reproduction strategy employed by the Sclerophyllous hardwood species. Most plants in the community have resistant seeds that retain their viability for decades and in some cases require fire or extreme heat before they can germinate. Because of this, fire serves as the major cause of succession by creating the conditions necessary for establishment and perpetuation of most species found. Different intervals between fires can shift species composition or with the total exclusion of fire, some species may disappear from the area entirely. Long intervals between fires may allow the Sclerophyllous hardwoods to mature and after 30 to 50 years, plants may contain 25 to 50 percent dead woody material. This is the stage vegetation is currently at in the Soda Mountain WSA. Thus, when a fire does start, it could be extremely intense and fast moving.

The effect of fire on the soils in the study area is dependent on fuel accumulations (duff and litter layers), soil moisture conditions and fire intensity. Soil erosion is usually accelerated following a fire in this area. Depending on the intensity and resident time of the fire on a given area, water repellent layers could be formed. Nutrients will be temporarily increased, but because of the generally high intensities encountered in this fuel type, nitrogen and potassium may be volatilized; here again, it would be dependent on the resident time of the fire on a given area. The chance of having sustained fire intensities for a period of time sufficient to damage the soil types identified in the WSA is minimal for the majority of the area.

Mountain Lakes WSA: The exact role of fire, and fire characteristics of the vegetation in this area is not known. This is true of all the mixed conifer zones found in south central and southwestern Oregon. Frequency of fire occurrence is low at the higher elevations and moderate to high at the lower elevations in the Ponderosa Pine zone. In the gradient from Ponderosa Pine to White Fir to Shasta Red Fir, species display a range of shade and fire tolerance. Pine needles form flammable fuel beds which are conducive to burning. The White Fir type has a compact fuel bed that burns less often. It is known that fire can and does create small openings where moisture becomes available after the death of one or more of the mature trees and if the opening is not too large, trees can compete with the Sclerophyllous hardwoods. The exact role of fire in the reproductive strategies of these forest species is now known, but it is not considered critical to perpetuation of these forest species. Brush fields may develop on burned areas depending on size of opening created and significantly slow the rate of forest succession. Repeated burning of these brush fields may make them semi-permanent communities. It is suspected by researchers that the most dramatic role of fire in this vegetative type is the maintenance of fire tolerant species over shade tolerant species.

Fires in this forest type do not result in universal burning over the entire soil surface; therefore, soil erosion seldom occurs. Nutrient levels will be temporarily increased after burning, and since fires are of generally low intensity, volatilization of nitrogen and potassium should not occur. Formation of water-repellent layers is also not critical in this area.

FIRE MANAGEMENT POLICY AND GUIDANCE

Past fire occurrence

According to Oregon State Forestry records, approximately fifteen fires occurred in the vicinity of the Soda Mountain WSA between the years 1976 to 1984. These fires were between one-quarter to five acres in size with an occurrence of one fire in 1976 to five fires in 1984.

Because of the small size of the Mountain Lakes WSA, records showing past fire occurrence in this area are not available. It is suspected that when fires did occur they were of a low intensity and one-quarter acre or less in size.

Prescribed Fire

Prescribed natural fire, resulting from unplanned ignitions, will not be allowed to occur in the WSAs at this time. Provisions for allowing prescribed natural fire in the Soda Mountain WSA may be incorporated into this fire management plan when the fire environment and fire regime that currently exist can be identified, and fire management areas established. The possible future use of prescribed natural fire shall pertain only to the Soda Mountain WSA.

Prescribed fire, resulting from planned ignitions, shall be permitted in the Soda Mountain WSA to maintain the natural condition of a fire dependent ecosystem. Use of prescribed fire, utilizing planned ignitions in the WSA, will require development and circulation of an Environmental Analysis. The U.S. Forest Service policy of not allowing planned ignitions in wilderness areas shall apply to the Mountain Lakes WSA.

Smoke Management

The Soda Mountain WSA is approximately seven miles southeast of the boundary of the Medford/Ashland non-attainment area. The Mountain Lakes WSA is approximately 40 miles south of Crater Lake National Park and 13 miles northwest of Klamath Falls, Oregon. Since prescribed fire resulting from planned or unplanned ignitions are not permitted in the Mountain lakes WSA, smoke intrusions in either Klamath Falls or Crater Lake National Park, will be the result of wildfire and considered unavoidable. Prescribed burning resulting from planned ignitions in the Soda Mountain WSA will be done in accordance with the Oregon Smoke Management Plan.

Pre-suppression and Suppression Guidance

Protection agencies will notify the Bureau of Land Management, Medford District Office, immediately when a fire is reported in, or has the potential to enter either the Mountain Lakes or Soda Mountain WSAs. Telephone numbers and names of individuals that may be contacted are listed in the appendix.

When a fire report is received, a BLM Resource Advisor shall be assigned to the fire and will contact the responsible protection agency as soon as possible. A list of qualified resource advisors and their telephone numbers are listed in the appendix. It will be the function of the Resource Advisor to:

1. Obtain the legal description of the fire, existing and expected fire behavior and current fire weather information.

2. Assist protection agency officials in identifying threatened resource, cultural or social values.

3. Act as a liaison between the protection agency and the BLM Medford District for specific fire management actions where District or Area manager approval is required.

4. Complete a Fire Behavior Report and Suppression Response Evaluation form which is attached to this plan (see appendix). These reports shall be completed as needed so an accurate record of fire activities may be kept. The reports will be given or sent to the Medford District Fire Management Officer in a timely manner to ensure BLM management officials are kept current of the on going fire situation. If the Resource Advisor is unable to bring the completed reports into the District Office, he/she will call the reports in by radio or telephone.

A suppression response used in a WSA shall be mutually agreed upon between the BLM Resource Advisor and the responsible protection agency official. This may be done in advance of fire season, by the BLM requesting a copy of each protection agencies dispatch cards for the WSA'S. Suppression tactics and methods will be based on safety considerations, existing and predicted fire behavior and existing and predicted fire weather conditions. Decisions made should be based on more than economics since political and social values are valid when deciding the appropriate suppression response in a wilderness study area.

If the initial suppression response dictated by the dispatch card and burning index is modified by the BLM so as not to impair wilderness suitability and/or values, and this results in a cost that would not normally be incurred by the protection agency, the BLM will pay the additional cost.

A BLM Resource Advisor shall be required to be on-site at the fire if:

1. BLM management officials feel it would be beneficial to have a resource advisor on site.

2. The fire exceeds, or is expected to exceed, the initial attack response.

3. The fire is not expected to be contained in the same burning period.

When a resource advisor is dispatched to the fire, he/she shall work directly with the assigned incident commander. The resource advisor may request a reconnaissance flight to appraise the fire situation. An official from the protection agency may accompany the resource advisor on this flight. Determination of whether a flight is required shall be made by BLM officials. Their decision shall be based on current fire behavior and fire weather conditions. The flight will be made in accordance with BLM regulations and at BLM's expense. A special use flight plan has been prepared, approved and is attached to this plan.

Specific Policies and Guidance for Suppression and Post-Suppression Activities

The following suppression activities will not impair wilderness values if carried out as specified, and reclamation satisfies IMP criteria as approved by the area manager in whose jurisdiction the fire occurred.

EARTH-MOVING EQUIPMENT SHALL NOT BE USED WITHOUT PRIOR APPROVAL OF THE BLM's MEDFORD DISTRICT MANAGER. THIS AUTHORITY MAY NOT BE DELEGATED AND THERE WILL BE NO EXCEPTIONS.

• Firelines will be located to take advantage of natural barriers, such as rock outcroppings, streams and changes in vegetative types.

• Firelines scraped to mineral soil shall be covered with the material removed from them and shall be no wider than minimum necessary to stop the spread of the fire.

• Unburned material may be left inside the fireline. All such material will be felt/tested with bare hands to ensure no sparks, or glowing embers remain. Limbs, logs and other material turned parallel to the slope to prevent rolling and spotting will be placed or scattered to resemble a natural condition.

• Waterbarring of firelines will be done if needed to prevent accelerated erosion.

• Limbing of trees along the fireline shall be done only if necessary for fire suppression and/or fire fighter safety.

• Burning snags or trees shall be felled only when they are a definite threat to fire containment or the safety of fire fighters. As a guide, snags inside the established fire control line a distance equal or exceeding their height may need not be cut.

• Logs within the proposed fireline will be rolled out of their beds. If rolling is not possible, let the log burn if a fireline can reasonably be constructed around it.

• Helicopters should land in natural openings where only minimal improvements are necessary. Heliports should be constructed outside WSA's if possible.

• Except for spot maintenance to remove obstructions, ways, trails or water sources should not be improved. If improved, they should be restored to their pre-fire condition if possible.

• Fire engines, tankers and other non-earth moving equipment should be used on existing ways to the extent feasible. Such equipment may be used cross country where necessary, but such use will be held to the absolute minimum. Crossing of streams, springs and seeps should be avoided.

• Use of fire retardants approved by the Dept. Agriculture, U.S. Forest Service may be used.

REHABILITATION GUIDELINES

Soil conservation and protection is the criterion to be used for rehabilitation decisions. Undesirable fire effects such as the return of poor forage or reduction of wildlife browse are not issues that would require emergency rehabilitation actions. It shall be assumed off-site values will be protected if soils are protected.

If seeding is proven to be necessary to protect soils, use of seed drills or planting of non-native species shall not be done without approval of the BLM's Oregon/Washington State Director. All proposals for rehabilitation projects shall have an Environmental Analysis prepared and distributed at the same time justification for emergency funding is sent to the BLM State Office for review.

SUMMARY

As stated in the introduction, this plan is designed to be of a protective, interim nature. The Mountain Lakes WSA, if designated as wilderness, may be incorporated into the existing Mountain Lakes Wilderness Area. Further fire management recommendations for the Mountain Lakes WSA shall not be made as this plan is supplemented and updated. It should be emphasized that the Dept. of Interior's IMP and Field Guide for Management Actions in WSA's shall apply until the area is designated as wilderness or withdrawn from further consideration.

The Soda Mountain WSA presents a greater challenge. Since the ecosystem of this area has evolved with fire, this plan should be supplemented to ensure fire remains a natural process within the area. Past fire protection programs have modified the ecosystem of the area and increased the potential of a catastrophic fire occurring. To correct this, it will be necessary when making future management recommendations to incorporate prescribed fire, both natural and planned into this fire management plan. Doing so will produce and maintain a dynamic ecosystem that will enhance the wilderness characteristics of the area as well as improving the habitat for wildlife that uses the area.

Appendix H - How Fire Risk Rating was Calulated

The following figure displays the fire occurrence and fire frequency within the CSNM.

Table AH-1. Fire Occurrence and Associated Fire Frequency.

Size Class	Number of Fires	Annual Fire Frequency
0.25 acres	186	8.01
.025 - 10 acres	41	1.76
10 - 100 acres	4	0.17
101-1000 acres	1	0.04

Fire history data (table AH-1) over the past 31 years show that 75 of the 232 fires which have occurred in the CSNM were on Bureau of Land Management land. These fires had an average size of 0.74 acres and the average response time to these fires was three hours. One hundred and fifty-seven fires started on private land with an average size of 3.7 acres and an average response time of 1 hour. Initial attack was done primarily (92%) with hand crews and engines. Sixty-five percent of the fires occurred under high to extreme fire danger ratings with an average size of 5.4 acres in extreme conditions and 1.4 acres in high conditions. The remaining fires which occurred during fire season averaged 0.47 acres. Refer to maps 23, 24, 25 and 26 for more specific information regarding attack type, fires by ownership, fire size, and fires by danger type.

A fire risk rating was developed for the CSNM. The following formula was used to arrive at the fire risk rating.

Risk Rating= {(x/y)10}/z
x= number of starts recorded for the area from the fire start data base.
y= period of time covered by the data base.
z= number of acres analyzed (displayed in thousands).

Low Risk = 0-0.49; this projects one fire every 20 or more years/thousand acres.
Moderate Risk = 0.5-0.99; this projects one fire every 11-20 years/thousand acres.
High Risk = greater than 0.99; this projects one fire every 0-10 years/thousand acres.

Risk Rating for the CSNM = {(232/32)10}/85,173 = .0008

Appendix I - Fire Hazard Rating

In the fall of 1995 a team of fuel management specialists was formed to develop a standard method which could be used to assign a fire hazard rating to an area. Specialist were from the Medford BLM and the Rogue River National Forest. Based on local knowledge of fire behavior of southwest Oregon the following factors were determined to be necessary in order to assign fire hazard rating to an area.

- Fuel Model
- Presence of Ladder Fuels
- Slope
- Aspect
- Elevation

The second step was to assign a point system to these factors. The following point system is what was developed by the team.

1) Fuel Models
   - Fuel Models 1,2,3,8 — 0 points
   - Fuel Models 5,6,9 — 5 points
   - Fuel Models 11,10 — 10 points
   - Fuel Models 4,12,13 — 15 points

2) Slope
   - less than 20% — 5 points
   - 20%-45% slope — 10 points
   - greater than 45% — 25 points

3) Aspect
   - 315-360 & 0-68 degrees — 5 points
   - 68-135 &293-315 degrees — 10 points
   - 135-293 degrees — 15 points

4) Elevation greater than 4,500 feet — -10 points

5) Presents of Ladder Fuels — 10 points

Hazard ratings were based on the summation of total points assigned to these factors. The following fire hazard rating was developed.

Appendix AI-1. Table 1. Hazard Rating Classes	
Points	Hazard Rating
0-24	Low
25-50	Moderate
> 50	High

Field inventory and satellite data was used to establish fuel models and the presence of ladder fuels for all lands within the CSNM. This information was used to produce layers for fuel model and ladder fuels in GIS. These two layers along with layers on slope, aspect and elevation which already existed in GIS were used to give a hazard rating to all lands within the CSNM.

Appendix J - Prioritization of Fuels Treatments in CSNM

A major objective for fuels management treatments in the CSNM is to protect late-successional habitat (habitat 1 and 2). To achieve this objective several factors need to be considered in order to prioritize areas for treatment. The location and the Fire Hazard Ratings of an area are the two main criteria.

In regards to location, areas within 1/4 mile of LSOG habitat 1 and 2 would be given a high priority for fuels hazard reduction work. Another key criteria for prioritizing fuels reduction work is along the ridge line that runs from Pilot Rock to Soda Mountain and Keene Ridge which runs from Soda Mountain to Jenny Creek. This ridge line has been identified as a strategic natural feature by ODF for indirect fire suppression measures. Road access is limited or does not exist in the majority of areas south of these ridge lines. Without access response time to fires is increased and firefighter safety can be compromised due to the limitation of escape routes. Fires burning with moderate to high fire intensities would limit fire suppression efforts to indirect measures. Prioritizing fuels management work along and adjacent to this ridge line would reduce current fuel loadings which would increase the probability that indirect measures would be successful.

The Fire Hazard Ratings of an area would be used based on the rating of high, moderate and low respectively.

Prioritization of areas for treatment exclude the Soda Mountain Wilderness Study Area, Scotch Creek RNA and Oregon Gulch RNA.

Implementation Priorities for Alternative B

1. All areas classified as moderate and high fire hazard within Habitat 3 should be treated. Approximately 3,400 acres are in this category.

Implementation Priorities for Alternative C

1. All areas classified as high fire hazard within Habitat 1 and 2 should be treated. Approximately 1,770 acres are in this category and Map 43 shows the location of these areas.

2. All areas classified as high fire hazard within 1/4 mile of habitat types 1 and 2 should be treated. Approximately 3,955 acres are in this category and Map 43 shows the location of these areas. The prioritization of treatment would be as follows:

3.
- Habitat Type 3 (approximately 346 acres)
- Habitat Type 4 (approximately 2,614 acres)
- Habitat Type 5 (approximately 839 acres)
- Habitat Type 6 (approximately 157 acres)

4. Areas which have been classified as moderate hazard in habitat 3 and are within 1/4 mile of habitat types 1 and 2 (map 44). Approximately 2,000 acres are in this category.

Implementation Priorities for Alternative D

1. All areas classified as high fire hazard within Habitat 1 and 2 should be treated. Approximately 1,770 acres are in this category and Map 43 shows the location of these areas.

2. All areas classified as high fire hazard within 1/4 mile of habitat types 1 and 2 should be treated. Approximately 3,955 acres are in this category and Map 43 shows the location of these areas. The prioritization of treatment would be as follows:
- Habitat Type 3 (approximately 346 acres)
- Habitat Type 4 (approximately 2,614 acres)
- Habitat Type 5 (approximately 839 acres)
- Habitat Type 6 (approximately 157 acres)

3. Areas which have been classified as moderate hazard in habitat 3 and 5 and are within 1/4 mile of habitat types 1 and 2 (map44). Approximately 6,400 acres are in this category.

Fuels Management Treatments

An array of treatments can be utilized to modify vegetative patterns and reduce high fuel levels. Factors such as existing and projected fuel loadings, existing vegetative conditions, slope, and access have to be taken into consideration for prescribing the type of fuels management treatment that should be implemented. These treatments include mechanical methods, manual treatments, prescribed burning or a combination of these treatments.

Fuels have accumulated within the CSNM, due to the absence of fire, which precludes single entry fuels treatment in most areas. The energy release from prescribed fire as the initial entry would exceed desired intensity levels and have undesirable effects on vegetation and soil. A combination of mechanical or manual treatments with prescribed fire is necessary to insure all resource objectives are met.

Mechanical treatment of fuels is limited to slopes less than 40 percent. Manual treatment of fuels consist of hand cutting of existing ladder fuels and then hand piling this material so it can be burned.

Prescribed burning includes, underburning, broadcast and handpile burning. Handpile burning is utilized in areas which have been manually treated. This type of burning takes place in the late fall and winter after a significant amount of rainfall has occurred.

Underburning is the preferred method of fuels reduction work in stands of conifers and hardwoods. Underburning is a low intensity surface fire which can be highly effective in reducing a large amount of surface fuels and some ladder fuels. Prescribed underburning is conducted during weather conditions (usually late winter and spring) when the moisture levels in the ground fuels allow for low intensity fire. Current and predicted weather conditions such as wind, humidity, and temperature are monitored closely and taken into account prior to igniting a prescribed underburn and fire lines are constructed where needed around the perimeter of the unit. This attention allows for a controlled burning situation.

Broadcast burning is used in grasslands and shrublands to restore native vegetation and modify seral stages in vegetative communities. This type of burning would occur in the late summer, fall or early winter.

Access is a key factor that has to be taken into consideration when conducting prescribed burning. Without access there can be an increase risk of escape due to the lack of availability and mobility of people, equipment and water. This can be mitigated in some cases by burning at times of the year which decrease the chance of escape. These times are late fall, winter, and early spring. Limited access may preclude the use of prescribed burning in some cases.